

REMARKS

Applicant requests favorable reconsideration and allowance of this application in view of the foregoing amendments and the following remarks.

Claims 1, 3, 5, 8-11, 13, 16, 18, and 29 are pending in the application, with Claims 1, 18, and 29 being independent.

Claims 1, 18 and 29 have been amended. Applicant submits that support for the amendments can be found in the original disclosure, for example, at least at page 15, lines 1-26 of the specification. Therefore, no new matter has been added.

Applicant appreciates the courtesies extended by Examiner Mosser in granting and conducting a personal interview with Applicant's representative on July 12, 2005. The substance of the interview is presented below, in the context of the outstanding rejections.

Claims 1, 3, 5, 8-11, 18, and 29 stand rejected under 35 U.S.C. § 102 as being anticipated by U.S. Patent No. 5,638,300 (Johnson). Claims 3 and 13 are rejected under 35 U.S.C. § 103 as being obvious over Johnson in view of U.S. Patent No. 5,655,223 (Cozza). Applicant respectfully traverses this rejection for the reasons discussed below.

The present invention as recited in independent Claim 1 is directed to a user interface apparatus that enables a user to indicate a command using movement of a body part, such as a gesture with the hand, for example. As discussed during the interview, a user generally uses multiple body parts to convey information, and reliance on the position(s) of one or more body parts, without accounting for their relative position, can lead to ambiguity in interpreting a user's intent. For example, when a head is facing forward and a user extends the arm forward, that gesture may indicate a command such as "attack" because a user typically would face the target of the attack. However, if the user's

arm makes the same movement while the user's head is facing another direction, the user's intent is likely to be something other than the "attack" command. Accordingly, the present invention recited in Claim 1 uses an estimated relative position between a user's head and a second portion of the user to improve reliability in understanding a user's attention. This is described in the specification, for example, at least at page 13, line 19 through page 14, line 20, for example.

Applicant's representative then contrasted Johnson, pointing out that it discloses (i) determining positions on a control pad relative to a source-sensor coordinate system (col. 4, lines 31-43), (ii) attaching a sensor to a user's head or hat (col. 3, lines 31-48), (iii) calculating a transformation matrix to rotate coordinates read by sensors to a swing coordinate system, i.e., relative to a control pad's orientation in space (col. 4, lines 44-52), and (iv) determining and analyzing direction cosines between various body parts (col. 10, lines 15-45), but does not disclose or suggest estimating a relative position of one body part with respect to a position and orientation of the user's head.

Applicant's representative also pointed out that Johnson discloses that for each frame of a user's swing, a model position and an actual measured position of a sensor are compared and a warning message is displayed if they are not within a predetermined tolerance level (col. 10, lines 45-55), but it is not understood to disclose generating action information on the basis of a transition of the estimated relative position of one body portion with respect to the user's head, as recited in Claim 1.

The Examiner seemed to indicate that the proposed claim amendments would overcome a Section 102 rejection over Johnson based on anticipation. However, he took the position that the amended claims would be obvious over Johnson and would likely be

rejected as being obvious under Section 103. In particular, the Examiner asserted that Johnson discloses determining coordinates in an x-y-z coordinate system relative to a source-sensor system or a control pad orientation, but there was no reason the x-y-z coordinate system must have its origin at the source or the control pad. Accordingly, the Examiner asserted that it would have been obvious to move the reference origin for the coordinate system to a user's head, and that the positions of all body part sensors would then be determined with respect to the user's head. The Examiner suggested amending the claims in a manner that would distinguish the coordinate systems used in the claimed invention from an x-y-z coordinate system as used in Johnson.

Applicant respectfully traverses the Examiner's position and submits that there is no motivation or suggestion for one skilled in the art to modify the system of Johnson as suggested by the Examiner. As understood by Applicant, Johnson discloses the use of a fixed reference coordinate system. Even assuming that the reference origin could be moved to a place other than a control pad or other location on the ground, Applicant submits that there is no motivation to move the reference origin to a user's head or any other position that is not fixed.

Claim 1 has been amended to emphasize this distinction between the use of a fixed reference coordinate system in Johnson and the use of a coordinate system based on a user's head, which moves. In particular, Claim 1 recites, *inter alia*, the feature wherein an estimating unit determines the relative position of a second portion with respect to the position and orientation of a user's head by transforming coordinates between a head coordinate system that is based on the position and orientation of the head detected by a first sensor and another coordinate system that is based on information detected by a

second sensor. Applicant submits that nothing in Johnson either discloses or suggests at least that feature of Claim 1.

Applicant further submits that Johnson fails to disclose or suggest at least the feature of generating command information on the basis of a transition of an estimated relative position. Instead, Applicant submits that Johnson merely discloses generating a warning message, for example, based on a comparison of a measured position with a calculated model position.

In view of the foregoing, Applicant submits that the present invention recited in Claim 1 is patentable over the cited art. Independent Claims 18 and 29 recite similar features and are believed patentable for similar reasons as Claim 1. The dependent claims are believed patentable for at least the same reasons as the independent claims, as well as for the additional features they recite.

For the foregoing reasons, Applicant submits that this application is in condition for allowance. Favorable reconsideration, entry of this Amendment, withdrawal of the rejections set forth in the above-mentioned Office Action, and an early Notice of Allowance are requested.

Applicant's undersigned attorney may be reached in our Washington, DC office by telephone at (202) 530-1010. All correspondence should continue to be directed to our below-listed address.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Brian L. Klock", is written over a horizontal line.

Attorney for Applicant
Brian L. Klock
Registration No. 36,570

FITZPATRICK, CELLA, HARPER & SCINTO
30 Rockefeller Plaza
New York, New York 10112-3800
Facsimile: (212) 218-2200
BLK/mls

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